



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,815	07/30/2003	Tsutomu Ohzuku	43888-267	9492

7590 09/20/2006

MCDERMOTT, WILL & EMERY
600 13th Street, N.W.
WASHINGTON, DC 20005-3096

EXAMINER

LEE, CYNTHIA K

ART UNIT	PAPER NUMBER
----------	--------------

1745

DATE MAILED: 09/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/629,815	Applicant(s) OHZUKU ET AL.	
	Examiner Cynthia Lee	Art Unit 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/20/2003</u> . | 6) <input checked="" type="checkbox"/> Other: <u>See Continuation Sheet</u> . |

Continuation of Attachment(s) 6). Other: IDS: 7/18/2005, 7/22/2005, 8/29/2005, 12/13/2005, 7/24/2006.

Election/Restrictions

Applicant's election without traverse of element Co for M in the reply filed on 6/30/2006 is acknowledged. Claim 13 has been withdrawn from further consideration as being drawn to a non-elected invention.

Priority

Acknowledgement has been made of applicant's claim for priority under 35 USC 119 (a-d) or (e). The certified copy has been filed on 7/30/2003.

Information Disclosure Statement

The Information Disclosure Statement (IDS) filed 7/30/2003, 7/18/2005, 7/22/2005, 8/29/2005, 12/13/2005, 7/24/2006 has been placed in the application file and the information referred to therein has been considered.

Drawings

The drawings received 7/30/2003 are acceptable for examination purposes.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear what "R3-m" means.

Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "substantially" is a relative term which renders the

Art Unit: 1745

claim indefinite. The term "substantially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The range for x is $-0.1 \leq x \leq 0.3$. However, Mx in the formula cannot be a negative number. Correction is required.

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8 and 10-12, and 14 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ohzuku (Layered Lithium Insertion Material of $\text{LiCo}_{1/3}\text{Ni}_{1/3}\text{Mn}_{1/3}\text{O}_2$ for Lithium-Ion Batteries, Chemistry Letters 2001, the Chemical Society of Japan, pgs 642-643).

Ohzuku discloses a positive electrode material comprising the formula $\text{LiCo}_{1/3}\text{Ni}_{1/3}\text{Mn}_{1/3}\text{O}_2$ (see Abstract).

Art Unit: 1745

Ohzuku does not expressly disclose the crystal structure of the above formula as claimed by the Applicants in claims 1-4 and 6-8. However, the Examiner notes that while the prior art does not explicitly teach these properties, these are considered inherent in the prior art barring any differences shown by objective evidence between the positive electrode material disclosed in the prior art and the applicant. As the positive active material taught by the prior art and the applicant are identical within the scope of claim 10 and Example 1-2 in the Specification, Ohzuku inherently teaches the crystalline properties as claimed by the Applicants.

A reference which is silent about a claimed invention's features is inherently anticipatory if the missing feature *is necessarily present in that which is described in the reference*. In re Robertson, 49 USPQ2d 1949 (1999). The courts have held that claiming of a property or characteristic which is inherently present in the prior art does not necessarily make the claim patentable. In re Best, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). See MPEP 2112 and 2112.01.

When the Examiner has provided a sound bases for believing that the products of the applicant and the prior art are the same, the burden of proof is shifted to the applicant to prove that the product shown in the prior art does not possess the characteristics of the claimed product. In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Regarding claim 14, Ohzuku discloses a $\text{Li/LiCo}_{1/3}\text{Ni}_{1/3}\text{Mn}_{1/3}\text{O}_2$ cell (see fig. 3). A cell necessarily contains an electrolyte.

Claims 1-8 and 10-12, and 14 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ohzuku (Layered Lithium Insertion Material of $\text{LiNi}_{1/2}\text{Mn}_{1/2}\text{O}_2$: A Possible Alternative to LiCoO_2 for Advanced Lithium-Ion Batteries, Chemistry Letters 2001, the Chemical Society of Japan, pgs 744-745).

Ohzuku discloses a positive electrode material comprising the formula $\text{LiNi}_{1/2}\text{Mn}_{1/2}\text{O}_2$ (see Abstract).

Ohzuku does not expressly disclose the crystal structure of the above formula as claimed by the Applicants in claims 1-4 and 6-8. However, the Examiner notes that while the prior art does not explicitly teach these properties, these are considered inherent in the prior art barring any differences shown by objective evidence between the positive electrode material disclosed in the prior art and the applicant. As the positive active material taught by the prior art and the applicant are identical within the scope of claim 10 and Example 1-1 in the Specification, Ohzuku inherently teaches the crystalline properties as claimed by the Applicants.

A reference which is silent about a claimed invention's features is inherently anticipatory if the missing feature *is necessarily present in that which is described in the reference*. In re Robertson, 49 USPQ2d 1949 (1999). The courts have held that claiming of a property or characteristic which is inherently present in the prior art does not necessarily make the claim patentable. In re Best, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). See MPEP 2112 and 2112.01.

Art Unit: 1745

When the Examiner has provided a sound bases for believing that the products of the applicant and the prior art are the same, the burden of proof is shifted to the applicant to prove that the product shown in the prior art does not possess the characteristics of the claimed product. In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Regarding claim 14, Ohzuku discloses a $\text{Li/LiNi}_{1/3}\text{Mn}_{1/3}\text{O}_2$ cell (see fig. 3). A cell necessarily contains an electrolyte.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohzuku (Layered Lithium Insertion Material of $\text{LiCo}_{1/3}\text{Ni}_{1/3}\text{Mn}_{1/3}\text{O}_2$ for Lithium-Ion Batteries, Chemistry Letters 2001, the Chemical Society of Japan, pgs 642-643) as applied to claim 1 above, and further in view of Miyasaka (US 6416902).

Ohzuku discloses all the elements of claim 1 and are incorporated herein. Ohzuku discloses particles but does not disclose primary particles and secondary particles as claimed in Applicant's claim 9. However, Miyasaka discloses a lithium ion battery comprising a positive electrode with a mean grain size in the range of 1 to 30 μm for secondary particles and in the range of 0.1 to 0.5 for primary particles. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was

Art Unit: 1745

made to have primary and secondary particles as taught by Miyasaka for the benefit of having two particle size distribution. Having two particle size distribution will enhance better packing of because smaller particles will be able to occupy void spaces between larger particles.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohzuku (Layered Lithium Insertion Material of $\text{LiNi}_{1/2}\text{Mn}_{1/2}\text{O}_2$: A Possible Alternative to LiCoO_2 for Advanced Lithium-Ion Batteries, Chemistry Letters 2001, the Chemical Society of Japan, pgs 744-745) as applied to claim 1 above, and further in view of Miyasaka (US 6416902).

Ohzuku discloses all the elements of claim 1 and are incorporated herein. Ohzuku discloses particles but does not disclose primary particles and secondary particles as claimed in Applicant's claim 9. However, Miyasaka discloses a lithium ion battery comprising a positive electrode with a mean grain size in the range of 1 to 30 μm for secondary particles and in the range of 0.1 to 0.5 for primary particles. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have primary and secondary particles as taught by Miyasaka for the benefit of having two particle size distribution. Having two particle size distribution will enhance better packing of because smaller particles will be able to occupy void spaces between larger particles.

Conclusion

Art Unit: 1745

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Lee whose telephone number is 571-272-8699. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ckl

Cynthia Lee

Patent Examiner


JONATHAN CREPEAU
PRIMARY EXAMINER